

## **Comments**

The enclosed is responsive to the Examiner's Office Action mailed February 23, 2005. At the time the Examiner mailed the Office Action claims 5-11 and 23-52 were pending. By way of the present response the Applicant has: 1) amended claims 23, 24, 27, 29, 36, 38, 39, 42, 44 and 51; 2) has not added any claims; 3) has not canceled any claims. As such claims 5-11 and 23 - 52 remain pending. The Applicant respectfully requests reconsideration of the present application and the allowance of all claims.

The Examiner has objected to claims 24 and 39 for their failure to include a connecting term. See, Examiner's Office Action mailed 2/23/05, pg. 2. The Examiner has included the term "contains" where appropriate and respectfully submits that their indefiniteness has been cured.

The Examiner has rejected claims 23, 24, 29, 39 and 44 under 35 USC 112, paragraph 2, as being indefinite for the recitation of the term "acceptable to". See, Examiner's Office Action mailed 2/23/05, pg. 2. In response, the Applicant has amended each of these claims such that they no longer contain the offending "acceptable to" term, and, rather, recite "preparing input expressions for a geometric program solver by executing the following in software". The applicant respectfully submits that the Examiner's rejection has been overcome by way of these amendments.

The Examiner has maintained a rejection against independent claim 5 and has rejected recently added claims 23-52.

With respect to the rejection against independent claim 5, the Examiner has taken the position that the previously cited Shao-Po and Hershenson references in combination with the newly cited Bricker reference (“Signomial Geometric Programming”) are sufficient to reject independent claim 5 under 35 USC 103. See, Examiner’s Office Action mailed 2/23/05, pg. 2.

Claim 5 is directed to the conversion of algebraic expressions into expressions that are suitable for geometric program solving software, where, the conversion at least involves converting an algebraic expression into a signomial expression. Here, note that independent claim 5 recites the phrase “creating a set of signomial expressions” and the term “geometric program solver”. The combination cited by the Examiner therefore at a minimum needs to disclose, teach or suggest these elements in order for the Examiner’s combination to be effective.

The Applicant respectfully submits that the Examiner’s combination fails to teach these elements. In fact, the Examiner’s own analysis conveniently “drops” the term “geometric”. According to the Examiner, the Shao-Po reference discloses “converting [a] set of constraints expressions to a optimized compact numeric format to be accepted by a program solver”. See, Examiner’s Office Action mailed 2/23/05, pg. 4.

A more precise statement of analysis is whether or not Shao-Po discloses “converting a set of signomial expressions to a compact numeric format to be accepted by a geometric program solver”. See, Applicant’s claim 5. This the Shao-Po reference does not do. The abstract of the Shao-Po reference expressly limits the Shao-Po reference to teaching processes that prepare semidefinite

programming problems (SDPs) or determinant maximization problems (max-det problems). No where is it suggested by Shao-Po that the processes taught by Shao-Po reference can be extended to geometric programs.

The Hershenson reference describes expressions in geometric form for RFIC circuitry that can be solved by a geometric program solver. See, Hershenson, Col. 3, lines 33 – 50 and, e.g., Cols. 5 through 8, equations (4) through (10), (13), (14), (16) and (17) . However, Hershenson does not appear to provide any matter concerning a process by which these expressions can be generated. Therefore, it does not appear possible for the Hershenson reference to cover the Applicant's claim element analyzed above (but now with different emphasis): "converting a set of signomial expressions to a compact numeric format to be accepted by a geometric program solver".

The Bricker reference provides definitions of mathematical forms for signomial geometric programming, but, like the Hershenson reference, fails to describe a process by which expressions can be generated.

Therefore it appears that none of the references cited by the Examiner are sufficient alone or in combination to cover the Applicant's element in claim 5 of "converting a set of signomial expressions to a compact numeric format to be accepted by a geometric program solver".

The Examiner's rejection of independent claims 23, 29, 38, 44 is deficient for similar reasons. Figures 2A and 2B of the Applicant's specification reveals a process by which an algebraic expression is converted to a signomial expression by converting its mathematical terms to signomials (box 220), and, then, reducing the

signomial expression to a posynomial objective, posynomial inequality or monomial equality (box 250). The objective, inequality or equality is then effectively provided to a geometric program solver (boxes 150 and 155 of Figure 1 of the Applicant's specification).

The Applicant can dismiss the Examiner's rejection of claims 23, 29, 38, 44 for the largely the same reasons provided above with respect to claim 5. That is, at a minimum, the Examiner needs to find prior art that covers a process that generates expressions directed to a geometric program solver. The Examiner appears to have rejected claims 23, 29, 38 and 44 under 35 USC 103 solely in light of the Shao-Po reference. As discussed at length above, the Shao Po reference is limited to SDP or max-det problems and is not extendible to geometric programs.

The Examiner's rejections of claims 23, 29, 38 and 44 also appears to take "Official Notice" on a number of claim elements by concluding without any analysis that they are obvious. Under, MPEP 2144.03.C an Applicant can force an Examiner to find in the prior art subject matter to which the Examiner has taken Official Notice.

The Applicant respectfully submits that it is not well known in the art that (emphasis added):

"reducing a signomial expression to one of the following: a posynomial objective, a posynomial inequality, a monomial equality"

“combining mathematical terms of an algebraic expression to reduce the algebraic expression to one of the following: a posynomial objective, a posynomial inequality, a monomial equality”

and hereby traverses the Examiner’s Official Notice for the above identified subject matter and specifically requests the Examiner to find the same in the prior art so that a proper rejection under 35 USC 103 may be established.

Because the Applicant has demonstrated the patentability of all pending independent claims, the Applicant respectfully submits that all pending claims are allowable. The Applicant’s silence with respect to the dependent claims should not be construed as an admission by the Applicant that the Applicant is complicit with the Examiner’s rejection of these claims. Because the Applicant has demonstrated the patentability of the independent claims, the Applicant need not substantively address the theories of rejection applied to the dependent claims.

If there are any additional charges, please charge Deposit Account No. 02-2666. If a telephone interview would in any way expedite the prosecution of this application, the Examiner is invited to contact Robert B. O'Rourke at (408)720-8300.

Respectfully submitted,

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